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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,296	07/15/2003	Katsuro Tachibana	EKOS.8CP3DV1C3	7573

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EXAMINER	
BOCKELMAN, MARK	

ART UNIT	PAPER NUMBER
3766	

NOTIFICATION DATE	DELIVERY MODE
05/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/620,296	TACHIBANA ET AL.	
	Examiner	Art Unit	
	Mark W. Bockelman	3766	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1-28-2008 and 10-3-2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-11* is/are pending in the application.

4a) Of the above claim(s) *8-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 6-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/972,846 and 09/158,316.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10-03-2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 8-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1-28-2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al USPN 5,542,935 in view of Gulliya et al. USPN 5,177,073, or alternatively in further view of Umemura et al. “Sonochemical Activation of Hematoporphyrin: A potential Modality for Cancer Treatment” 1989 Ultrasonics Symposium, IEEE (1989) pp 955-960 or Yumita et al. “Synergystic Effect of Ultrasound and Hematoporphyrin on Sarcoma 180” Jpn. J. Cancer Res. Vol,1, pp304-308 (March 1990).

Unger teaches using ultrasound to rupture therapeutic-containing microspheres, thereby releasing the therapeutic into the patient's body (column 4, lines 31-37; column 7, lines 21-25) and may be in the vasculature (column 34, lines 9-10) The microspheres may contain one or more therapeutic agents (column 26, lines 34-37), including

hematoporphyrins and their derivatives (light activated drug) (col. 24, lns. 16, 54-55), wherein the therapeutics may be embedded in the wall of, encapsulated in, and/or attached to the microspheres (column 6, lines 56-59; column 23, lines 56-57). The microspheres may be liposomes (column 10, lines 33-51; column 20, lines 4-9; column 17, lines 30-31). Although Unger et al does not necessarily state the benefit of using ultrasound with the light sensitized liposomes, he inherently performs the same method as applicant. The secondary references demonstrating that the activation of the medicaments can be performed using the ultrasound.

At column 26 lines 34-41, Unger teaches administering a site directing molecule at the same time as the microspheres containing the therapeutic agent (e.g. light activated drug). Unger does not specifically teach that the site directing molecule is coupled to the light activated drug. Gulliya et al. teach attaching a site directing drug to the light activated molecule (column 7, lines 14-18, 45-46; column 8 lines 21-36). It would have been obvious to couple the site directing molecule to the light activated drug as taught in Gulliya et al., wherein the light activated drug is coupled to the microspheres taught in Unger as an alternative and more efficient and localized treatment method to the method discussed in column 26 lines 34-41 of Unger.

Even more so, applicant's claims do not actually require the use of the targeting molecule in the method as there is no stated binding step. The mere addition of an element that is not essential to the method claimed is considered prima facie obvious. The relative intensity of cavitation would and inherent property of the byproduct.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al USPN 5,542,935 in view of Gulliya et al. USPN 5,177,073, or alternatively in further view of Umemura et al. "Sonochemical Activation of Hematoporphyrin: A potential Modality for Cancer Treatment" 1989 Untrasonics Symposium, IEEE (1989) pp 955-960 or Yumita et al. "Synergystic Effect of Ultrasound and Hematoporphyrin on Sarcoma 180" Jpn. J. Cancer Res. Vol,1, pp304-308 (March 1990) as applied to claims 1-2 and 6 above, and further in view of Ragheb et al. USPN 6,096,070.

Unger does not specifically disclose providing a thrombolytic agent in the microspheres. However, Ragheb teaches microencapsulating a bioactive compound in a microsphere such as a liposome (column 18, lines 17-20), and providing a plurality of bioactive compounds with such microspheres such as photodynamic therapy agents and thrombolytic agents (column 3, lines 45-48, 53-54; column 18, lines 3-5; column 8, lines 6-17). It would have been obvious to have encapsulated a thrombolytic agent as disclosed in Ragheb into the microspheres formed by the combination of Unger and Gulliya et al., and to deliver them into the patient's blood vessels by ultrasound as further discussed in Unger, to provide appropriate treatment for a patient in a manner consistent with the many examples disclosed in Unger et al.

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Unger et al USPN 5,542,935 in view of Gulliya et al. USPN 5,177,073, or alternatively in further view of Umemura et al. "Sonochemical Activation of Hematoporphyrin: A potential Modality for Cancer Treatment" 1989 Untrasonics Symposium, IEEE (1989) pp 955-960

or Yumita et al. "Synergystic Effect of Ultrasound and Hematoporphyrin on Sarcoma 180" Jpn. J. Cancer Res. Vol,1, pp304-308 (March 1990) as applied to claims 1-2 and 6 above, and further in view of Thompson et al. USPN 5277913.

Although Unger teaches delivering a plurality of therapeutic agents into a patient's body, Unger does not disclose that the light activatable drug may be located in the medium surrounding the microbubble. Thompson discloses this at col. 7, lns. 21-26. It would have been obvious to provide an additional light activatable drug in the medium surrounding the microbubble disclosed in Unger depending on the characteristics of the therapeutic compounds selected to be delivered by the microbubble, and the location of those compounds relative to the microbubble.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark W. Bockelman whose telephone number is (571) 272-4941. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on (571) 272 -4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark W Bockelman/
Primary Examiner, Art Unit 3766
May 12, 2008